

Did You Know?

Although most people consider baseball an American invention, a similar game, called *rounders*, was played in England as early as the 1600s. Like baseball, rounders involved hitting a ball and running around bases. However, in rounders, the fielders actually threw the ball at the base runners. If a ball hit a runner while he was off base, he was out.

Alexander Cartwright was a founding member of the Knickerbockers Base Ball Club of New York City, baseball's first organized club. Cartwright played a key role in writing the first set of formal rules for baseball in 1845.

According to Cartwright's rules, a batter was out if a fielder caught the ball either on the fly or on the first bounce. Today, balls caught on the first bounce are not outs. Cartwright's rules also stated that the first team to have 21 runs at the end of an inning was the winner. Today, the team with the highest score after nine innings wins the game.



For: Information about Alexander Cartwright
Web Code: ape-9031

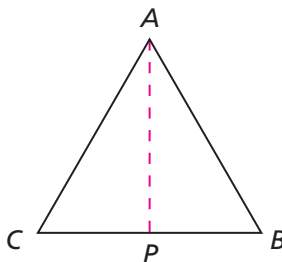
4.3 Analyzing Triangles

All equilateral triangles have reflection symmetries. This property and the Pythagorean Theorem can be used to investigate some interesting properties of other equilateral triangles.

Getting Ready for Problem 4.3

Triangle ABC is an equilateral triangle.

- What is true about the angle measures in an equilateral triangle?
- What is true about the side lengths of an equilateral triangle?



Line AP is a reflection line for triangle ABC .

- What can you say about the measures of the following angles? Explain.

Angle CAP

Angle BAP

Angle CPA

Angle BPA

- What can you say about line segments CP and PB ? Explain.
 - What can you say about triangles ACP and ABP ?
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Problem 4.3 Analyzing Triangles

- A.** Copy triangle ABC on the facing page. If the lengths of the sides of this equilateral triangle are 4 units, label the following measures:
1. angle CAP
 2. angle BAP
 3. angle CPA
 4. angle BPA
 5. length of CP
 6. length of PB
 7. length of AP
- B.** Suppose the lengths of the sides of ABC triangles are s units. Find the measures of the following:
1. angle CAP
 2. angle BAP
 3. angle CPA
 4. angle BPA
 5. length of CP
 6. length of PB
 7. length of AP
- C.** A right triangle with a 60° angle is called a 30-60-90 triangle. This 30-60-90 triangle has a hypotenuse of length 6 units.
1. What are the lengths of the other two sides?
Explain how you found your answers.
 2. What relationships among the side lengths do you observe for this 30-60-90 triangle? Is this relationship true for all 30-60-90 triangles? Explain.

ACE Homework starts on page 53.

